

RESERVE

## PATENT SPECIFICATION



Application Date: April 10, 1934. No. 10840/34.

436,397

Complete Specification Left: April 10, 1935.

Complete Specification Accepted: Oct. 10, 1935.

### PROVISIONAL SPECIFICATION

#### Improvements in or relating to High Tension Electric Insulators

We, PETER MAYOW NEWMAN, a British subject, of 1, Woodbury Road, Stourport, Worcestershire, and STEATITE AND PORCELAIN PRODUCTS LIMITED, a British Company, of Stourport, Worcestershire, do hereby declare the nature of this invention to be as follows:—

The present invention relates to electric insulators of the suspension type which are provided with screens or sheds, and its object is to so shape the latter that they are kept clean by wind and rain.

It has been proposed to make the screens or sheds smooth and uninterrupted by ridges on both sides, and to set them obliquely in relation to the longitudinal axis of the insulator. In this way the natural cleansing actions of wind and rain are utilised to the best advantage for preventing the surface of the insulator becoming fouled by dust, soot and other foreign matter which has a tendency to reduce the flash-over voltage of the insulator.

This advantage, however, is only secured at the expense of the surface leakage distance of the insulator, and whilst the effectiveness of an insulator which is exposed to an atmosphere containing dust, soot, etc. depends not so much on the actual surface leakage distance as on the ability of the surface to be cleansed by wind and rain, yet it is clear that, if the surface leakage distance is increased without substantially reducing the ability of the surface to be cleansed by wind and rain, the effectiveness of the insulator will be increased. One method of increasing the surface leakage distance is by increasing the diameter of the screens or sheds, but this

has the disadvantages of substantially increasing the cost of the insulator and of making it more cumbersome and more liable to become broken in service. Another method is by increasing the number of units composing a chain of insulators.

According to the present invention, we provide an insulator of the suspension type having one or more screens or sheds with a rippled surface such that the wind and the rain can readily cleanse it. Either the upper or the lower surfaces of the screens or sheds, or both surfaces, may be rippled in this manner to minimise the liability of the insulator to flash over by increasing the surface leakage distance between the electrodes. The ripples should be such that the depth of the troughs does not exceed their distance apart. The screens or sheds are preferably set obliquely in relation to the longitudinal axis of the insulator, i.e. the line in which a chain of the insulators would be arranged.

A suspension insulator of the cap and pin type constructed according to the invention is illustrated in the accompanying drawing, in which reference numeral 1 denotes the porcelain body of the insulator, 2 the metal cap and 3 the pin. The screen or shed 4 is set obliquely to the axis of the insulator and is rippled on both its upper and lower surfaces as shown. The depth of the troughs 5, indicated by the line A—B, does not exceed their distance apart, indicated by the line C—D.

Dated the 6th day of April, 1934.

E. C. G. CLARKE,  
Imperial Chemical House,  
Millbank, London, S.W. 1,  
Solicitor for the Applicants.

### COMPLETE SPECIFICATION

#### Improvements in or relating to High Tension Electric Insulators

We, PETER MAYOW NEWMAN, a British subject, of 1, Woodbury Road, Stourport, Worcestershire, and STEATITE AND PORCELAIN PRODUCTS LIMITED, a British Company, of Stourport, Worcestershire, [Price 1/-]

Price 4s 6d

do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

Price 3s 6d

The present invention relates to electric insulators of the suspension type which are provided with screens or sheds, and its object is to so shape the latter that while affording an increased surface leakage distance of the insulator they are nevertheless adapted to be kept clean by the wind and rain.

It has been proposed in British Specification No. 349,240 to increase the leakage path of a suspension insulator by providing grooves, corrugations or ridges on the outer surface so that rain may have free access to all parts of the grooves thereby keeping the surface clean.

In British Specification No. 358,968, however, it has been proposed to make the screens or sheds smooth and uninterrupted by ridges on both sides, and to set them obliquely in relation to the longitudinal axis of the insulator, thereby permitting a better utilisation of the cleansing action of the wind and rain.

Furthermore, in British Specification No. 391,048 electric insulators are described in which the shed or screen is inclined to the axis of the insulator and it is stated that the shed may be smooth or may be provided with ribs or corrugations.

The advantageous self-cleaning characteristics of insulators provided with smooth inclined sheds are only secured at the expense of the surface leakage distance of the insulators, and although the effectiveness of an insulator which is exposed to an atmosphere containing dust, soot, etc. depends not so much on the actual surface leakage distance as on the ability of the surface to be cleansed by wind and rain, yet it is clear that, if the surface leakage distance is increased without substantially reducing the ability of the surface to be cleansed by wind and rain, the effectiveness of the insulator will be increased. One method of increasing the surface leakage distance is by increasing the diameter of the screens or sheds, but this has the disadvantages of substantially increasing the cost of the insulator and of making it more cumbersome and more liable to become broken in service. Another method is by increasing the number of units composing a chain of insulators.

We have now discovered, however, that

in an electric insulator having inclined sheds the sheds may be formed in such a manner as to increase the surface leakage distance without impairing the self-cleaning properties of the insulator, provided that the surface is formed in the particular manner described below.

According to the present invention an electric insulator of the suspension type has one or more screens or sheds set obliquely in relation to the longitudinal axis of the insulator, the upper and/or lower surfaces of the said screens or sheds having a uniform wave-like form such that the depth of the troughs does not exceed the distance between adjacent troughs.

A suspension insulator of the cap and pin type constructed according to the invention is illustrated in the drawing accompanying the Provisional Specification, in which reference numeral 1 denotes the porcelain body of the insulator, 2 the metal cap and 3 the pin. The screen or shed 4 is set obliquely to the axis of the insulator and is rippled on both its upper and lower surfaces as shown. The depth of the troughs 5, indicated by the line A—B, does not exceed their distance apart, indicated by the line C—D.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

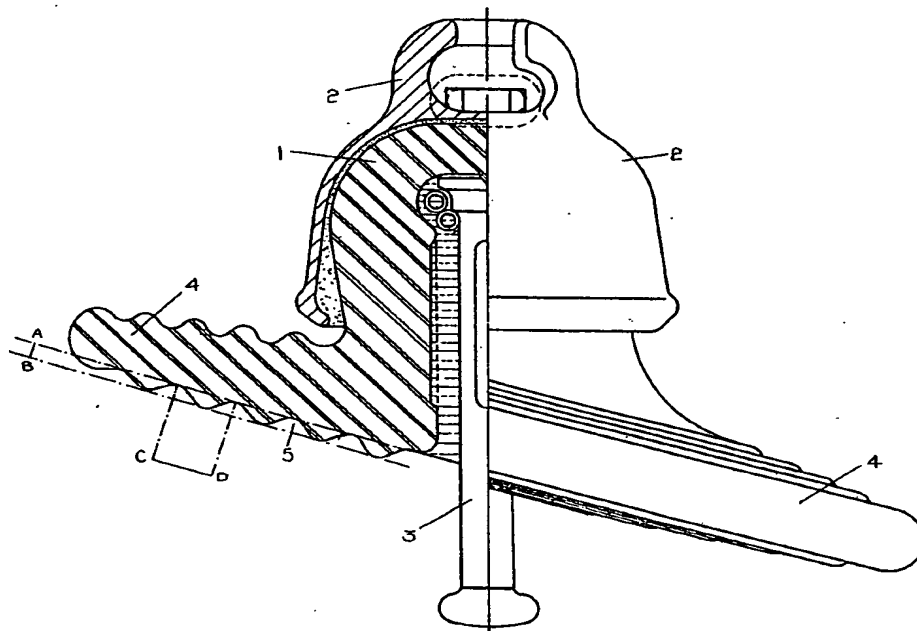
1. An electric insulator of the suspension type provided with one or more screens or sheds set obliquely in relation to the longitudinal axis of the insulator, the upper and/or lower surfaces of the said screens or sheds having a uniform wave-like form such that the depth of the troughs does not exceed the distance between adjacent troughs.

2. An electric insulator of the suspension type substantially as hereinbefore described with reference to the drawing accompanying the Provisional Specification.

Dated the 10th day of April, 1935.

E. C. G. CLARKE,  
Imperial Chemical House,  
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Solicitor for the Applicants.

[This Drawing is a reproduction of the Original on a reduced scale.]



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